U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

155537

SEARCH REQUEST FORM

Requestor's Name: Krisanne Jastrzab Serial Number: 10/080,042

Date: 6-6-05 Phone: (571) 272-1279 Art Unit: 1744
6059

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevent citations, authors, keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevent claim(s).

Please see attached.

STAFF USE ONLY

Date completed: EJ 6-17-05
Searcher:
Terminal time: 125
Elapsed time:
CPU time:
Total time: 135
Number of Searches:
Number of Databases:

Search Site
- ✓ STIC
- CM-1
- Pre-S

Type of Search
- N.A. Sequence
- A.A. Sequence
- ✓ Structure (8) (subsets)
- ✓ Bibliographic (and)

Vendors
- IG
- ✓ STN $601.73
- Dialog
- APS
- Geninfo
- SDC
- DARC/Questel
- Other

PTO-1590 (9-90)

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=> file reg
FILE 'REGISTRY'
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=> d his

     FILE 'HCAPLUS'
L1          5506 S BOND ?/AU
L2         15117 S NODA ?/AU
L3            21 S L1 AND L2
L4           149 S BOND E?/AU
L5           679 S NODA I?/AU
L6            16 S L4 AND L5
L7          2310 S ?HYDROXYALKANOAT?
L8             6 S L6 AND L7
                 SEL L8 1-6 RN

     FILE 'REGISTRY'
L9             9 S E1-E9
L10            7 S L9 AND PMS/CI

     FILE 'HCAPLUS'
                 SEL L3 1-21 RN

     FILE 'REGISTRY'
L11           40 S E1-E49
L12           28 S L11 AND PMS/CI
L13           17 S L12 AND 3/ELC.SUB
L14           14 S L13 AND NO RSD/FA
                 SEL 1,2 RN
L15            2 S E50-E51
                 E STARCH/CN
L16            1 S E3

     FILE 'ZCAPLUS'
L17          146 S L15
L18       151228 S L16 OR STARCH##
L19            3 S L17 AND L18

     FILE 'REGISTRY'
                 SEL L14 5,9 RN
L20            2 S E1-E2
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     FILE 'ZCAPLUS'
L21        1297 S L20
L22         137 S L21 AND L18

     FILE 'REGISTRY'
                SEL L14 5 RN
L23           1 S E3
                SEL L14 9 RN
L24           1 S E4

     FILE 'ZCAPLUS'
L25        1255 S L23
L26        1017 S L24
L27         134 S L25 AND L18
L28         109 S L26 AND L18

     FILE 'LCA'
L29        7647 S (FILM? OR THINFILM? OR LAYER? OR OVERLAY? OR OVERLAID?

     FILE 'ZCAPLUS'
L30        3171 S (BIODEGRA? OR BIODECOMP?)(2A)(FILM? OR THINFILM? OR LAY
L31          47 S L27 AND L30
L32          43 S L28 AND L30
L33          42 S L31 AND L32

     FILE 'LREGISTRY'
L34             STR

     FILE 'REGISTRY'
                E POLYESTER/PCT
L35      185663 S E3
L36       20836 S L35 AND NO RSD/FA
L37        8821 S L36 AND 3/ELC.SUB
L38        6354 S L37 AND 1<NC
L39        4580 S L38 AND 4>NC
L40             STR
L41          10 S L34 NOT L40 SSS SAM SUB=L39
L42         159 S L34 NOT L40 SSS FUL SUB=L39
                SAV L42 JAS042/A
L43         176 POLYLINK L42
L44          17 S L43 NOT L42

     FILE 'ZCAPLUS'
L45        1897 S L43
L46           9 S L44
L47           0 S L46 AND L18
L48        1617 S L45 NOT (L17 OR L21 OR L25 OR L26)
L49         117 S L48 AND L18
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L50          36 S L49 AND L30

     FILE 'REGISTRY'
L51           1 S 80181-31-3

     FILE 'LREGISTRY'
L52             STR L34

     FILE 'REGISTRY'
L53           5 S (L52 AND L34) NOT L40 SSS SAM SUB=L42

     FILE 'LREGISTRY'
L54             STR

     FILE 'REGISTRY'
L55           1 S (L54 AND L34) NOT L40 SSS SAM SUB=L42
L56          34 S (L54 AND L34) NOT L40 SSS FUL SUB=L42
                SAV L56 JAS042A/A

     FILE 'LREGISTRY'
L57             STR L34
L58             STR

     FILE 'REGISTRY'
L59           2 S L57 AND L58 SSS SAM SUB=L42
L60          24 S L57 AND L58 SSS FUL SUB=L42
                SAV L60 JAS042B/A
L61             STR
L62             STR L61
L63           1 S L61 AND L62 SSS SAM SUB=L42
L64           3 S L61 AND L62 SSS FUL SUB=L42
                SAV L64 JAS042C/A

     FILE 'ZCAPLUS'
L65         201 S L56
L66         226 S L60
L67           3 S L64
L68           0 S L67 AND L18
L69           6 S L66 AND L18
L70           4 S L65 AND L18
L71           9 S L19 OR L69 OR L70
L72          41 S L33 NOT L71
L73          25 S L72 AND (1900-2001/PY OR 1900-2001/PRY)

     FILE 'REGISTRY'


=> d l56 que stat
```

```
L34             STR

HO—G1—G2—COOH       CH-G3
 1   2   3   4          @7  8


VAR G1=CH2/7
REP G2=(1-2) CH2
VAR G3=ME/ET
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   6

STEREO ATTRIBUTES: NONE
L35      185663 SEA FILE=REGISTRY POLYESTER/PCT
L36       20836 SEA FILE=REGISTRY L35 AND NO RSD/FA
L37        8821 SEA FILE=REGISTRY L36 AND 3/ELC.SUB
L38        6354 SEA FILE=REGISTRY L37 AND 1<NC
L39        4580 SEA FILE=REGISTRY L38 AND 4>NC
L40             STR

C═C
1  2


NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   2

STEREO ATTRIBUTES: NONE
L42         159 SEA FILE=REGISTRY SUB=L39 SSS FUL L34 NOT L40
L54             STR

   11
   G1
    |
O—CH—CH2—COOH       C—C—C
1  2  3   4         @7 @8  9


VAR G1=7/8
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
```

```
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   8

STEREO ATTRIBUTES: NONE
L56          34 SEA FILE=REGISTRY SUB=L42 SSS FUL (L54 AND L34) NOT L40

100.0% PROCESSED     57 ITERATIONS                          34 ANSWERS
SEARCH TIME: 00.00.01



=> d l60 que stat
L34              STR

HO—G1—G2—COOH        CH-G3
 1   2   3   4          @7  8


VAR G1=CH2/7
REP G2=(1-2) CH2
VAR G3=ME/ET
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   6

STEREO ATTRIBUTES: NONE
L35      185663 SEA FILE=REGISTRY POLYESTER/PCT
L36       20836 SEA FILE=REGISTRY L35 AND NO RSD/FA
L37        8821 SEA FILE=REGISTRY L36 AND 3/ELC.SUB
L38        6354 SEA FILE=REGISTRY L37 AND 1<NC
L39        4580 SEA FILE=REGISTRY L38 AND 4>NC
L40             STR

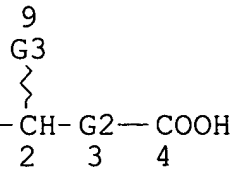
C═C
1  2


NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
```

NUMBER OF NODES IS 2

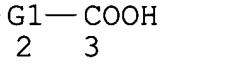
STEREO ATTRIBUTES: NONE
L42 159 SEA FILE=REGISTRY SUB=L39 SSS FUL L34 NOT L40
L57 STR



REP G2=(1-2) CH2
VAR G3=ME/ET
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE
L58 STR



REP G1=(2-9) CH2
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 3

STEREO ATTRIBUTES: NONE
L60 24 SEA FILE=REGISTRY SUB=L42 SSS FUL L57 AND L58

100.0% PROCESSED 159 ITERATIONS 24 ANSWERS
SEARCH TIME: 00.00.01

=> d 164 que stat
L34 STR

```
HO—G1—G2—COOH       CH-G3
 1   2   3   4         @7  8

VAR G1=CH2/7
REP G2=(1-2) CH2
VAR G3=ME/ET
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   6

STEREO ATTRIBUTES: NONE
L35      185663 SEA FILE=REGISTRY POLYESTER/PCT
L36       20836 SEA FILE=REGISTRY L35 AND NO RSD/FA
L37        8821 SEA FILE=REGISTRY L36 AND 3/ELC.SUB
L38        6354 SEA FILE=REGISTRY L37 AND 1<NC
L39        4580 SEA FILE=REGISTRY L38 AND 4>NC
L40             STR

C==C
1  2


NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   2

STEREO ATTRIBUTES: NONE
L42         159 SEA FILE=REGISTRY SUB=L39 SSS FUL L34 NOT L40
L61             STR

HO—CH2-CH2-COOH
 1  2   3   4


NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
```

NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE
L62 STR

HO—G1—CH2-COOH
1 2 3 4

REP G1=(2-8) CH2
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE
L64 3 SEA FILE=REGISTRY SUB=L42 SSS FUL L61 AND L62

100.0% PROCESSED 106 ITERATIONS 3 ANSWERS
SEARCH TIME: 00.00.01

=> file zcaplus
FILE 'ZCAPLUS'
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=> d l71 1-9 cbib abs hitstr hitind

L71 ANSWER 1 OF 9 ZCAPLUS COPYRIGHT 2005 ACS on STN
2004:964906 Document No. 141:396610 Molded or extruded articles comprising polyhydroxyalkanoate copolymer and an environmentally degradable thermoplastic polymer, article fabrication, and feminine hygiene article. Zhao, Jean Jiangun; Noda, Isao; Gilbertson, Gary Wayne; McAvoy, Drew Clifton; Gray, Brian Francis; Melik, David Harry (The Procter & Gamble Company, USA). U.S. Pat. Appl. Publ. US 2004225269 A1 20041111, 17 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-431796 20030508.
AB Environmentally degradable molded or extruded articles comprises a blend of polyhydroxyalkanoate copolymer and .gtoreq.5% environmentally degradable thermoplastic polymer or copolymer. Such compns. provide annealing cycle times to form molded or extruded

articles that are less than annealing cycle times to form a molded or extruded article lacking the environmentally degradable thermoplastic polymer or copolymer.

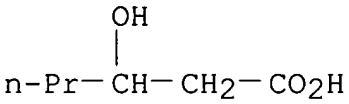
IT **147398-31-0**, 3-Hydroxybutyrate-3-Hydroxyhexanoate copolymer
(molded or extruded articles of blended polyhydroxyalkanoate and environmentally degradable thermoplastic)

RN 147398-31-0 ZCAPLUS

CN Hexanoic acid, 3-hydroxy-, polymer with 3-hydroxybutanoic acid (9CI) (CA INDEX NAME)

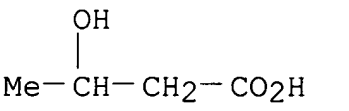
CM 1

CRN 10191-24-9
CMF C6 H12 O3



CM 2

CRN 300-85-6
CMF C4 H8 O3



IT **9005-25-8, Starch**, uses
(molded or extruded articles of blended polyhydroxyalkanoate and environmentally degradable thermoplastic)

RN 9005-25-8 ZCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM B29B009-00
ICS A61F013-20; B65D001-00; F16L001-00; B32B001-08; H05B006-02; B29C043-00; B29C043-32; B29C043-10

INCL 604364000; 604011000; 264013000; 428035700; 264472000; 264479000; 264500000

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 63

IT 24937-78-8, ELVAX 260 25103-74-6, TC 221 26023-30-3,

Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26063-00-3, Polyhydroxybutyrate 26680-10-4, Polylactide 26744-04-7 **147398-31-0**, 3-Hydroxybutyrate-3-Hydroxyhexanoate copolymer
(molded or extruded articles of blended polyhydroxyalkanoate and environmentally degradable thermoplastic)

IT **9005-25-8, Starch**, uses 24980-41-4, Polycaprolactone 25248-42-4, Polycaprolactone 25569-53-3, Polyethylene succinate 25667-11-2, Polyethylene succinate
(molded or extruded articles of blended polyhydroxyalkanoate and environmentally degradable thermoplastic)

L71 ANSWER 2 OF 9 ZCAPLUS COPYRIGHT 2005 ACS on STN
2004:934360 Document No. 141:380627 Polyhydroxyalkanoates blend and its applications. Whitehouse, Robert S. (USA). U.S. Pat. Appl. Publ. US 2004220355 A1 20041104, 20 pp., Cont.-in-part of U.S. Ser. No. 783,958. (English). CODEN: USXXCO. APPLICATION: US 2004-783995 20040220. PRIORITY: US 2003-PV449187 20030221; US 2004-783958 20040220.

AB Provided is a blend contg. .gtoreq.2 kinds of polyhydroxyalkanoates (PHAs) with different mol. wt., glass transition temp., melting behavior, and soly. parameter, and, optionally, additives selected from **starch**, polybutylene succinate, biodegradable material, polylactic acid, plant fiber, and polyolefin. Adhesive and plastic films can be prepd. from the above blend. Thus, 65 parts poly(3-hydroxy butyrate) and 35 parts 3-hydroxy butyrate-4-hydroxy butyrate were mixed to obtain a blend having a thermal deformation temp. >85.degree. and a Hansen soly. parameter of 20.02 J/mol.

IT **9005-25-8, Starch**, uses
(polyhydroxyalkanoates blends as adhesive and plastic films)

RN 9005-25-8 ZCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **117068-64-1**, 3-Hydroxy-butanoic acid-4-hydroxy-butanoic acid copolymer **147398-31-0**, 3-Hydroxy-butanoic acid-3-hydroxy-hexanoic acid copolymer
(polyhydroxyalkanoates blends as adhesive and plastic films)

RN 117068-64-1 ZCAPLUS

CN Butanoic acid, 3-hydroxy-, polymer with 4-hydroxybutanoic acid (9CI) (CA INDEX NAME)

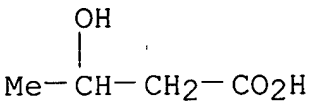
CM 1

CRN 591-81-1
CMF C4 H8 O3

HO—$(CH_2)_3$—CO_2H

CM 2

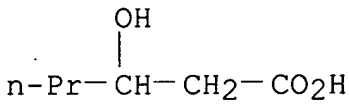
CRN 300-85-6
CMF C4 H8 O3



RN 147398-31-0 ZCAPLUS
CN Hexanoic acid, 3-hydroxy-, polymer with 3-hydroxybutanoic acid (9CI) (CA INDEX NAME)

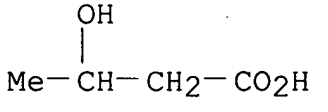
CM 1

CRN 10191-24-9
CMF C6 H12 O3



CM 2

CRN 300-85-6
CMF C4 H8 O3



IC ICM C12P007-62
ICS C08L077-06
INCL 525436000
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38
IT **9005-25-8, Starch,** uses

(polyhydroxyalkanoates blends as adhesive and plastic films)
IT 26063-00-3, Poly (3-Hydroxy butyrate) 26744-04-7 86175-71-5
117068-64-1, 3-Hydroxy-butanoic acid-4-hydroxy-butanoic acid copolymer 120659-38-3, Octanoic acid, 3-Hydroxy, homopolymer
147398-31-0, 3-Hydroxy-butanoic acid-3-hydroxy-hexanoic acid copolymer
(polyhydroxyalkanoates blends as adhesive and plastic films)

L71 ANSWER 3 OF 9 ZCAPLUS COPYRIGHT 2005 ACS on STN
2003:491085 Document No. 139:58009 Lumen formation-inducible material and instrument to be inserted into the body. Noishiki, Yasuharu (Japan). PCT Int. Appl. WO 2003051420 A1 20030626, 79 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2002-JP13084 20021213. PRIORITY: JP 2001-381833 20011214.
AB Disclosed is a lumen formation-inducible material capable of forming a lumen in which cells are exposed in at least a part of the intraluminal surface. If desired, this material can be inserted into the living body with the use of a hollow tube. Thus, a lumen formation-inducible material whereby lumen formation by cells can be surely induced in vivo is provided. Thus, 2 % sodium hyaluronate, 0.02 % protamine sulfate and 0.02 % sodium heparin soln. was mixed at 1:1:1 to make a gel string. The gel string was freeze-dried and then crosslinked with an epoxy compd. (EX-313). The obtained crosslinked gel string was implanted to a dog's left ventricle wall to make lumen.
IT **9005-25-8**, **Starch**, biological studies
117068-64-1, 3-Hydroxybutyric acid-4-hydroxybutyric acid copolymer
(lumen formation-inducible material and instrument to be inserted into the body)
RN 9005-25-8 ZCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

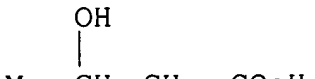
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 117068-64-1 ZCAPLUS
CN Butanoic acid, 3-hydroxy-, polymer with 4-hydroxybutanoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 591-81-1
CMF C4 H8 O3

CM 2

CRN 300-85-6
CMF C4 H8 O3



IC ICM A61L027-38
ICS A61L027-54; A61F002-04
CC 63-7 (Pharmaceuticals)
IT 1398-61-4, Chitin 9000-69-5, Pectin 9004-34-6, Cellulose, biological studies 9004-53-9, Dextrin 9004-54-0, Dextran, biological studies 9004-61-9, Hyaluronic acid **9005-25-8**, **Starch**, biological studies 9005-32-7, Alginic acid 9005-49-6, Heparin, biological studies 9007-28-7, Chondroitin sulfate 9012-36-6, Agarose 9012-76-4, Chitosan 9036-88-8, Mannan 9039-53-6, Urokinase 9041-08-1, Sodium heparin 9050-30-0, Heparan sulfate 25322-68-3, Polyethylene glycol 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid 28552-22-9, Polydioxane 34346-01-5, Lactic acid-glycolic acid copolymer **117068-64-1**, 3-Hydroxybutyric acid-4-hydroxybutyric acid copolymer
(lumen formation-inducible material and instrument to be inserted into the body)

L71 ANSWER 4 OF 9 ZCAPLUS COPYRIGHT 2005 ACS on STN
2003:454398 Document No. 139:41871 Hybrid resin material and method for preparation thereof. Noishiki, Yasuharu; Tadaki, Futoshi (Nicem, Ltd., Japan). PCT Int. Appl. WO 2003048241 A1 20030612, 85 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI,

CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2001-JP10650 20011205. PRIORITY: JP 2001-370188 20011204.

AB The title material comprises a porous structure of a hydrophobic resin and a sol. substance (or a hydrophilic substance) located in the pores and/or interstices constituting the porous structure, wherein, the sol. substance is sol. in a polar solvent and is also sol. in the polar solvent even in the state wherein the sol. substance is located in the interior of the porous structure. Thus, 1.2% gelatin was impregnated in a stretched PTFE tube for an artificial blood vessel.

IT **9005-25-8**, **Starch**, biological studies
117068-64-1, 3-Hydroxybutyric acid-4-hydroxybutyric acid copolymer
(porous hydrophobic resin contg. hydrophilic and sol. materials for artificial organs)

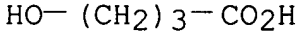
RN 9005-25-8 ZCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 117068-64-1 ZCAPLUS
CN Butanoic acid, 3-hydroxy-, polymer with 4-hydroxybutanoic acid (9CI) (CA INDEX NAME)

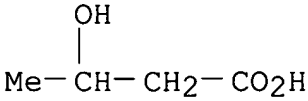
CM 1

CRN 591-81-1
CMF C4 H8 O3



CM 2

CRN 300-85-6
CMF C4 H8 O3



IC ICM C08J009-36
ICS A61L027-16; A61L027-56; A61L027-44

CC 63-7 (Pharmaceuticals)
Section cross-reference(s): 38, 45
IT 1398-61-4, Chitin 9000-69-5, Pectin 9004-34-6, Cellulose, biological studies 9004-53-9, Dextrin 9004-54-0, Dextran, biological studies **9005-25-8**, **Starch**, biological studies 9005-32-7, Alginic acid 9005-49-6, Heparin, biological studies 9007-28-7, Chondroitin sulfuric acid 9012-36-6, Agarose 9012-76-4, Chitosan 9036-88-8, Mannan 9050-30-0, Heparan sulfate 25322-68-3, Polyethylene glycol 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid 28552-22-9, Polydioxane 34346-01-5, Glycolic acid-lactic acid copolymer **117068-64-1**, 3-Hydroxybutyric acid-4-hydroxybutyric acid copolymer
(porous hydrophobic resin contg. hydrophilic and sol. materials for artificial organs)

L71 ANSWER 5 OF 9 ZCAPLUS COPYRIGHT 2005 ACS on STN
2003:335192 Document No. 138:339109 Polyhydroxyalkanoate copolymer/**starch** compositions for laminates and films. Bond, Eric Bryan; Noda, Isao (The Procter & Gamble Company, USA). PCT Int. Appl. WO 2003035753 A1 20030501, 34 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US31545 20021002. PRIORITY: US 2001-PV343569 20011019; US 2002-80042 20020219.
AB Films comprising a blend of polyhydroxyalkanoate copolymer and destructured **starch** are disclosed. Laminates having a first layer comprising a PHA copolymer and a second layer comprising a PHA copolymer/**starch** blend or thermoplastic **starch** are also disclosed. Disposable articles comprising the environmentally degradable films or laminates are also disclosed. A blend contained a 88:12 3-Hydroxybutyrate-3-hydroxyhexanoate copolymer and StarDri 1.
IT **9005-25-8D**, **Starch**, destructured, uses **147398-31-0**, 3-Hydroxybutyrate-3-hydroxyhexanoate copolymer
(polyhydroxyalkanoate copolymer/**starch** compns. for laminates and films)
RN 9005-25-8 ZCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

6,818,295

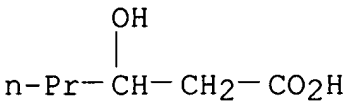
4

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 147398-31-0 ZCAPLUS
CN Hexanoic acid, 3-hydroxy-, polymer with 3-hydroxybutanoic acid (9CI) (CA INDEX NAME)

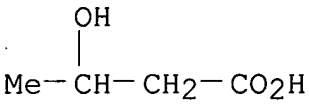
CM 1

CRN 10191-24-9
CMF C6 H12 O3



CM 2

CRN 300-85-6
CMF C4 H8 O3



IC ICM C08L067-04
ICS B32B027-36; C08L003-02
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 44
ST polyhydroxyalkanoate copolymer **starch** blend film biodegradable
IT Polyesters, uses
(hydroxycarboxylic acid-based; polyhydroxyalkanoate copolymer/**starch** compns. for laminates and films)
IT Absorbents
Bags
Biodegradable materials
Packaging materials
(polyhydroxyalkanoate copolymer/**starch** compns. for laminates and films)
IT Polymer blends
(polyhydroxyalkanoate copolymer/**starch** compns. for laminates and films)
IT **9005-25-8D, Starch**, destructured, uses
9050-36-6, StarDri 1 **147398-31-0**, 3-Hydroxybutyrate-3-hydroxyhexanoate copolymer

(polyhydroxyalkanoate copolymer/**starch** compns. for laminates and films)

L71 ANSWER 6 OF 9 ZCAPLUS COPYRIGHT 2005 ACS on STN
2002:185645 Document No. 136:231347 Process for production of biopolymer. Lapointe, Richard; Lambert, Alex; Savard, Louise (La Societe Novartem Inc., Can.). U.S. Pat. Appl. Publ. US 2002031812 A1 20020314, 7 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-949881 20010912. PRIORITY: US 2000-PV230918 20000913.

AB The present invention relates to a process of prodn. of polyhydroxyalkanoate (PHA) by incubating PHA producing microorganisms in a medium contg. **starch**, **starch** exts., or derivs. as sources of carbon. The process comprises also the synthesis of derived compds. belonging to the chem. family of PHA.

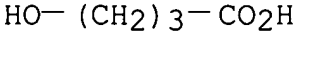
IT **9005-25-8D**, **Starch**, and hydrolyzates of
(process for microbial prodn. of polyhydroxyalkanoates)
RN 9005-25-8 ZCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **117068-64-1P**
(process for microbial prodn. of polyhydroxyalkanoates)
RN 117068-64-1 ZCAPLUS
CN Butanoic acid, 3-hydroxy-, polymer with 4-hydroxybutanoic acid (9CI) (CA INDEX NAME)

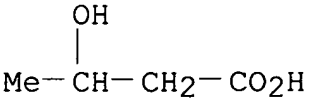
CM 1

CRN 591-81-1
CMF C4 H8 O3



CM 2

CRN 300-85-6
CMF C4 H8 O3



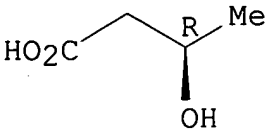
IC ICM C12P007-62
ICS A61K031-19
INCL 435135000
CC 16-4 (Fermentation and Bioindustrial Chemistry)
ST Azotobacter fed batch polyhydroxybutyrate fermn **starch**
IT 50-99-7, Dextrose, processes 6106-41-8, Sodium valerate **9005-25-8D, Starch**, and hydrolyzates of
(process for microbial prodn. of polyhydroxyalkanoates)
IT 80181-31-3P **117068-64-1P**
(process for microbial prodn. of polyhydroxyalkanoates)

L71 ANSWER 7 OF 9 ZCAPLUS COPYRIGHT 2005 ACS on STN
1995:412648 Document No. 122:215941 Biodegradable pressure-sensitive adhesive tape. Yoshida, Yoshinori; Sakai, Isoji; Shinomura, Toshihiko (Nitto Denko Corp., Japan). Eur. Pat. Appl. EP 609713 A1 19940810, 17 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1994-100800 19940120. PRIORITY: JP 1993-41869 19930204.
AB The tape comprises a substrate film and a pressure-sensitive elastomer adhesive layer, wherein the substrate film and/or the pressure-sensitive adhesive layer contains .gtoreq.20% (based on the polymeric elastomer) of a biodegradable macromol. material. Prepg. a polyester consisting of 13% 3-hydroxybutyric acid (I) and 87% 4-hydroxybutyric acid units by microorganism incubation using 1,4-butanediol as a carbon source, kneading the polyester 100, an aliph. petroleum resin tackifier 70, rosin 20, and a phenolic antioxidant 1 part, and coating the resulting adhesive on a 76:24 I-3-hydroxyvaleric acid copolymer film substrate (100 .mu.m) gave a 120-.mu.m adhesive tape, which was completely decompd. after burial in the soil for 6 mo.
IT **125495-90-1P**, (R)-3-Hydroxybutyric acid-4-hydroxybutyric acid copolymer
(adhesives; biodegradable pressure-sensitive adhesive tape)
RN 125495-90-1 ZCAPLUS
CN Butanoic acid, 3-hydroxy-, (3R)-, polymer with 4-hydroxybutanoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 625-72-9
CMF C4 H8 O3

Absolute stereochemistry.



CM 2

CRN 591-81-1
CMF C4 H8 O3

HO— $(CH_2)_3$ — CO_2H

IT **9005-25-8, Starch**, uses
(base film; biodegradable pressure-sensitive adhesive tape)
RN 9005-25-8 ZCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM C09J007-02
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 16, 35
IT **125495-90-1P**, (R)-3-Hydroxybutyric acid-4-hydroxybutyric acid copolymer 128971-75-5P
(adhesives; biodegradable pressure-sensitive adhesive tape)
IT 9002-89-5D, **starch**-modified 9003-07-0, Polypropylene **9005-25-8, Starch**, uses 9057-02-7, Pullulan 25038-59-9, PET polyester, uses 25777-14-4, 1,4-Butanediol-succinic acid copolymer 26247-20-1, Bionolle 1000 80181-31-3, 3-Hydroxybutyric acid-3-hydroxyvaleric acid copolymer
(base film; biodegradable pressure-sensitive adhesive tape)

L71 ANSWER 8 OF 9 ZCAPLUS COPYRIGHT 2005 ACS on STN
1995:392273 Document No. 122:292462 Biodegradable **starch** and aliphatic polyester compositions. Wada, Kenzo; Furusawa, Sachiko; Kuwabara, Jun (Tsutsunaka Plastic Kogyo, Japan). Jpn. Kokai Tokkyo Koho JP 06313063 A2 19941108 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-103367 19930430.
AB The compns. useful for sheets, films, and food packaging contain **starch** substances 100, biodegradable aliph. polyesters (mol. wt. 30,000-70,000) 5-40, and low-mol.-wt. aliph. polyesters (mol. wt. 300-3000) 1-5 parts. Thus, potato **starch** 100, Tone P 787 (polycaprolactone) 10, and Tone 0305 3 parts were extrusion molded at 110.degree. to give a 2-mm thick sheet with ASTM D 790

elasticity 30 .times. 103 kg/cm2, elongation 300%, Izod impact strength 5.0 kg-cm/cm, and good biodegradability.

IT **9005-25-8, Starch**, properties **112265-00-6 117068-64-1 124863-46-3**
(biodegradable **starch** and aliph. polyester compns.)

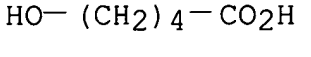
RN 9005-25-8 ZCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 112265-00-6 ZCAPLUS
CN Pentanoic acid, 3-hydroxy-, polymer with 3-hydroxybutanoic acid and 5-hydroxypentanoic acid (9CI) (CA INDEX NAME)

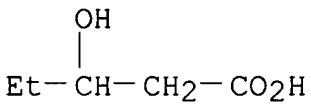
CM 1

CRN 13392-69-3
CMF C5 H10 O3



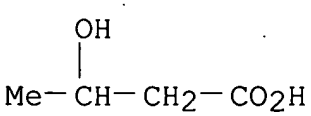
CM 2

CRN 10237-77-1
CMF C5 H10 O3



CM 3

CRN 300-85-6
CMF C4 H8 O3



RN 117068-64-1 ZCAPLUS
CN Butanoic acid, 3-hydroxy-, polymer with 4-hydroxybutanoic acid (9CI)

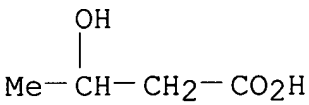
(CA INDEX NAME)

CM 1

CRN 591-81-1
CMF C4 H8 O3

CM 2

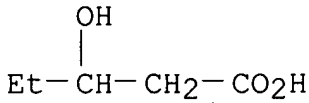
CRN 300-85-6
CMF C4 H8 O3



RN 124863-46-3 ZCAPLUS
CN Pentanoic acid, 3-hydroxy-, polymer with 3-hydroxybutanoic acid and 4-hydroxybutanoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 10237-77-1
CMF C5 H10 O3

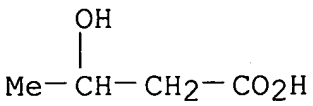


CM 2

CRN 591-81-1
CMF C4 H8 O3

CM 3

CRN 300-85-6
CMF C4 H8 O3



IC ICM C08L003-00
ICI C08L003-00, C08L067-00, C08L089-00, C08L005-00
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 17, 38
ST aliph polyester **starch** blend biodegradability; biodegradable polycaprolactone **starch** molding
IT Biodegradable materials
Packaging materials
(biodegradable **starch** and aliph. polyester compns.)
IT Polyesters, properties
(aliph., biodegradable **starch** and aliph. polyester compns.)
IT 25248-42-4, Polycaprolactone, sru
(Tone P 787; biodegradable **starch** and aliph. polyester compns.)
IT 54735-63-6, Tone 0305
(biodegradable **starch** and aliph. polyester compns.)
IT **9005-25-8**, **Starch**, properties 24936-97-8, Poly(tetramethylene adipate) 24937-05-1, Poly(ethylene adipate) 24938-37-2, Adipic acid-ethylene glycol copolymer 24980-41-4, Polycaprolactone 25034-96-2, Ethylene glycol-sebacic acid copolymer, sru 25037-32-5, Ethylene glycol-sebacic acid copolymer 25103-87-1, Adipic acid-tetramethylene glycol copolymer 25776-26-5, Poly(ethylene suberate) 25777-14-4, Butanedioic acid, polymer with 1,4-butanediol 26247-20-1, Poly(tetramethylene succinate) 26745-88-0, Hexamethylene glycol-sebacic acid copolymer 26760-99-6, Azelaic acid-ethylene glycol copolymer 26762-06-1, Ethylene glycol-suberic acid polymer, sru 26762-07-2, Poly(ethylene azelate) 26762-10-7, Poly(hexamethylene sebacate) 27516-92-3 28650-89-7, Poly(tetramethylene sebacate) 52352-27-9 80181-31-3, 3-Hydroxybutyrate-3-hydroxyvalerate copolymer **112265-00-6 117068-64-1 124863-46-3**
(biodegradable **starch** and aliph. polyester compns.)

L71 ANSWER 9 OF 9 ZCAPLUS COPYRIGHT 2005 ACS on STN
1993:132237 Document No. 118:132237 Disposable absorbent articles with

biodegradable backsheets. Toms, Douglas; Wnuk, Andrew Julian (Procter and Gamble Co., USA). PCT Int. Appl. WO 9300116 A1 19930107, 28 pp. DESIGNATED STATES: W: AU, BB, BG, BR, CA, CS, FI, HU, JP, KP, KR, LK, MG, MN, MW, NO, PL, RO, RU, SD; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FR, GA, GB, GR, IT, LU, MC, ML, MR, NL, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1992-US5138 19920617. PRIORITY: US 1991-721066 19910626.

AB Liq.-impervious, biodegradable films are disclosed. The films comprise a blend of an interpenetrated network of destructurized **starch** with ethylene-acrylic acid copolymers or ethylene-vinyl alc. copolymers, and an aliph. polyester such as polycaprolactone. Daipers, sanitary napkins, pantiliners, etc. contg. backsheets prepd. from the above materials are also disclosed. The materials of the invention enhance the biodegradability of the articles. A blend of Mater-Bi and polycaprolactone was prepd. and used for the backsheet of disposable diapers.

IT **9005-25-8D, Starch**, destructurized
(blends with copolymers and polyesters, for biodegradable backsheet for disposable diaper or other article)

RN 9005-25-8 ZCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

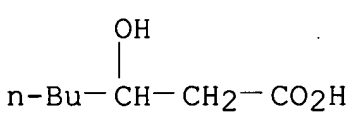
IT **121077-46-1**
(blends with destructurized **starch** and copolymers, for biodegradable backsheet for disposable diaper or other article)

RN 121077-46-1 ZCAPLUS

CN Heptanoic acid, 3-hydroxy-, polymer with 3-hydroxybutanoic acid and 3-hydroxypentanoic acid (9CI) (CA INDEX NAME)

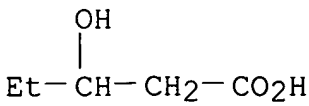
CM 1

CRN 17587-29-0
CMF C7 H14 O3



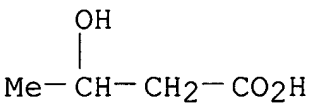
CM 2

CRN 10237-77-1
CMF C5 H10 O3



CM 3

CRN 300-85-6
CMF C4 H8 O3



IC ICM A61L015-00
ICS C08L067-04
CC 63-7 (Pharmaceuticals)
ST biodegradable film diaper pantiliner; sanitary napkin biodegradable film; destructurized **starch** biodegradable film; polycaprolactone biodegradable film; ethylene acrylic acid copolymer biodegradable film; vinyl alc ethylene copolymer biodegradable film
IT Absorbents
(articles, biodegradable backsheets for, destructurized **starch**-copolymer-polyester blend for)
IT Polyesters, biological studies
(blends with destructurized **starch** and copolymers, for biodegradable backsheet for disposable diaper or other article)
IT Wearing apparel
(panties, liners for, biodegradable backsheets for, destructurized **starch**-copolymer-polyester blend for)
IT Diapers
(disposable, biodegradable backsheets for, destructurized **starch**-copolymer-polyester blend for)
IT Medical goods
(sanitary napkins, biodegradable backsheets for, destructurized **starch**-copolymer-polyester blend for)
IT **9005-25-8D, Starch**, destructurized
(blends with copolymers and polyesters, for biodegradable backsheet for disposable diaper or other article)
IT 24980-41-4, Polycaprolactone 25052-62-4D, Ethylene-carbon monoxide copolymer, peroxyacid reaction products 25248-42-4, Polycaprolactone **121077-46-1**
(blends with destructurized **starch** and copolymers, for biodegradable backsheet for disposable diaper or other article)

IT 9010-77-9, Ethylene-acrylic acid copolymer 25067-34-9, Ethylene-vinyl alcohol copolymer
(blends with destructurized **starch** and polyesters, for biodegradable backsheet for disposable diaper or other article)

=> => d l73 5,10,15,20,25 cbib abs hitstr hitind

L73 ANSWER 5 OF 25 ZCAPLUS COPYRIGHT 2005 ACS on STN
2002:777815 Document No. 137:295657 Biodegradable polymer blends for use in making films, sheets and other articles of manufacture. Khemani, Kishan; Schmidt, Harald; Hodson, Simon K. (E. Khashoggi Industries, LLC, USA). PCT Int. Appl. WO 2002078944 A1 20021010, 61 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US9668 20020328. PRIORITY: WO 2001-US10052 20010328; US 2002-87718 20020301; US 2002-87256 20020301.

AB Biodegradable polymer blends suitable for laminate coatings, wraps and other packaging materials are manufd. from at least one hard biodegradable thermoplastic polymer and at least one soft biodegradable thermoplastic polymer. Hard biopolymers tend to be more brittle and rigid and typically have a glass transition temp. greater than about 10 .degree.C. Soft biopolymers tend to be more flexible and pliable and typically have a glass transition temp. less than about 0 .degree.C. While hard and soft polymers each possess certain intrinsic benefits, certain blends of hard and soft polymers have been discovered which possess synergistic properties superior to those of either hard or soft polymers by themselves. Biodegradable polymers include polyesters, polyester-polyamides, and **starch**. The polymer blends may optionally include an inorg. filler. Films and sheets made from the polymer blends may be textured so as to increase the bulk hand feel. Wraps will typically be manufd. to have good dead-fold properties so as to remain wrapped and not spring back to an unwrapped orientation. A typical compn. contained Biomax 6926 (modified PET) 94.84, Ecoflex F (aliph.-arom. polyester) 5, and SiO2 0.16%.

IT **9005-25-8, Starch**, uses **25777-14-4** **26247-20-1**, Polybutylene succinate
(biodegradable blends contg. stiff and flexible biodegradable polymers for packaging films)

RN 9005-25-8 ZCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 25777-14-4 ZCAPLUS
CN Butanedioic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)

CM 1

CRN 110-63-4
CMF C4 H10 O2

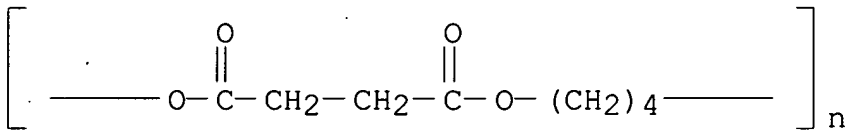
$HO-(CH_2)_4-OH$

CM 2

CRN 110-15-6
CMF C4 H6 O4

$HO_2C-CH_2-CH_2-CO_2H$

RN 26247-20-1 ZCAPLUS
CN Poly[oxy(1,4-dioxo-1,4-butanediyl)oxy-1,4-butanediyl] (9CI) (CA INDEX NAME)



IC ICM B32B007-00
ICS C08G063-06; C08G063-08; C08G063-12; C08G069-44; C08L077-12
CC 37-6 (Plastics Manufacture and Processing)
ST biodegradable polyester blend packaging film; **starch** blend **biodegradable** packaging **film**; polyamide polyester blend **biodegradable** packaging **film**; PET deriv aliph arom polyester blend packaging film
IT Packaging materials
(**biodegradable, films; biodegradable** blends contg. stiff and flexible biodegradable polymers for packaging films)
IT **9005-25-8, Starch**, uses 24980-41-4,

Polycaprolactone 25248-42-4, Polycaprolactone 25569-53-3, Polyethylene succinate 25667-11-2, Polyethylene succinate **25777-14-4** 26063-00-3, Polyhydroxybutyrate **26247-20-1**, Polybutylene succinate 26744-04-7 61256-56-2, BAK 1095 64400-90-4, .epsilon.-Caprolactone-glycolide-lactide copolymer 67423-06-7, Adipic acid-1,4-butanediol-succinic acid copolymer 80181-31-3 128171-16-4, Hydroxybutyric acid-hydroxyvaleric acid copolymer
(biodegradable blends contg. stiff and flexible biodegradable polymers for packaging films)

L73 ANSWER 10 OF 25 ZCAPLUS COPYRIGHT 2005 ACS on STN
2002:157873 Document No. 136:201067 **Biodegradable** polymer **films** and sheets suitable for use as laminate coatings as well as wraps and other packaging materials. Khemani, Kishan; Andersen, Per Just; Schmidt, Harald; Hodson, Simon K. (E. Khashoggi Industries, LLC, USA). PCT Int. Appl. WO 2002016468 A1 20020228, 50 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US10052 20010328. PRIORITY: US 2000-648471 20000823.

AB Biodegradable polymer blends suitable for laminate coatings, wraps and other packaging materials are manufd. from .gtoreq.1 hard biopolymer and .gtoreq.1 soft biopolymer, hard biopolymers tend to be more brittle and rigid and typically have a glass transition temp. (Tg) .gtorsim.10.degree., and soft biopolymers tend to be more flexible and pliable and typically have a Tg .ltorsim.0.degree., optionally including an inorg. filler. While hard and soft polymers each posses certain intrinsic benefits, certain blends of hard and soft polymers were discovered which possess synergistic properties superior to those of either hard or soft polymers by themselves. Biodegradable polymers include polyesters, polyesteramides and thermoplastically processable **starch**. Films and sheets made from the polymer blends may be textured so as to increase the bulk hand feel. Wraps will typically be manufd. so as to have good dead-fold properties so as to remain in a wrapped position and not spring back to an unwrapped and planar form. Laminate films will typically have good H2O vapor barrier properties as measured by their water vapor permeability coeff. (WVPC).

IT **9005-25-8**, **Starch**, properties
(soft/stiff **biodegradable** blended polymer **films** and sheets suitable for use as laminate coatings, wraps and other

packaging materials)
RN 9005-25-8 ZCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **25777-14-4 26247-20-1**, Polybutylene succinate
(soft/stiff **biodegradable** blended polymer **films** and sheets suitable for use as laminate coatings, wraps and other packaging materials)
RN 25777-14-4 ZCAPLUS
CN Butanedioic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)

CM 1

CRN 110-63-4
CMF C4 H10 O2

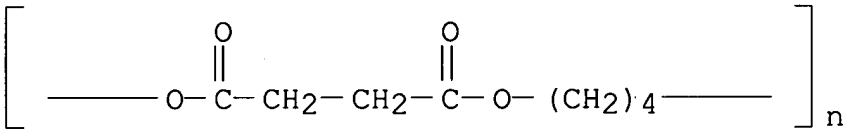
$HO-(CH_2)_4-OH$

CM 2

CRN 110-15-6
CMF C4 H6 O4

$HO_2C-CH_2-CH_2-CO_2H$

RN 26247-20-1 ZCAPLUS
CN Poly[oxy(1,4-dioxo-1,4-butanediyl)oxy-1,4-butanediyl] (9CI) (CA INDEX NAME)



IC ICM C08G063-91
ICS C08L003-00; B32B027-06
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38, 42
ST packaging wrap soft stiff biodegradable polymer blend;
coating soft stiff **biodegradable** polymer blend;

extruded **sheet film biodegradable**
polymer blend; thermal stability biodegradable polymer blend

IT Polyesters, properties
(polyamide-; soft/stiff **biodegradable** blended polymer **films** and sheets suitable for use as laminate coatings, wraps and other packaging materials)

IT Polyamides, properties
(polyester-; soft/stiff **biodegradable** blended polymer **films** and sheets suitable for use as laminate coatings, wraps and other packaging materials)

IT Biodegradable materials
Heat-resistant materials
Laminated plastic **films**
Packaging materials
Plastic **films**
(soft/stiff **biodegradable** blended polymer **films** and sheets suitable for use as laminate coatings, wraps and other packaging materials)

IT Polyesters, properties
(soft/stiff **biodegradable** blended polymer **films** and sheets suitable for use as laminate coatings, wraps and other packaging materials)

IT Polymer blends
(soft/stiff **biodegradable** blended polymer **films** and sheets suitable for use as laminate coatings, wraps and other packaging materials)

IT **9005-25-8**, **Starch**, properties 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 60961-73-1, Ecoflex (polymer) 61256-56-2, BAK 1095 400777-92-6, Biomax 6929
(soft/stiff **biodegradable** blended polymer **films** and sheets suitable for use as laminate coatings, wraps and other packaging materials)

IT 24980-41-4, Polycaprolactone 25248-42-4, Polycaprolactone **25777-14-4 26247-20-1**, Polybutylene succinate 64400-90-4, .epsilon.-Caprolactone-glycolide-lactide copolymer 67423-06-7, Adipic acid-butylene glycol-succinic acid copolymer 128171-16-4, Hydroxybutyric acid-hydroxyvaleric acid copolymer
(soft/stiff **biodegradable** blended polymer **films** and sheets suitable for use as laminate coatings, wraps and other packaging materials)

L73 ANSWER 15 OF 25 ZCAPLUS COPYRIGHT 2005 ACS on STN
2000:817602 Document No. 133:363419 Fire-resistant biodegradable composite resin compositions. Kikuchi, Yoshihiko; Mihara, Chieko (Canon Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2000319532 A2 **20001121**, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-129227 19990510.

AB Title compns. comprise org. polymers and silicon oxides. Thus, 80 g tetramethoxysilane and 100 g acetylcellulose were agitated in THF contg. HCl at room temp. for 3 h and poured onto a Teflon plate to give a fire-resistant **biodegradable** composite resin **film**.

IT **9005-25-8, Starch**, properties **25777-14-4** **26247-20-1**, Poly(butylene succinate)
(fire-resistant biodegradable composite resin compns.)

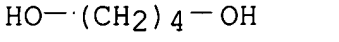
RN 9005-25-8 ZCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 25777-14-4 ZCAPLUS
CN Butanedioic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)

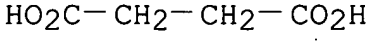
CM 1

CRN 110-63-4
CMF C4 H10 O2

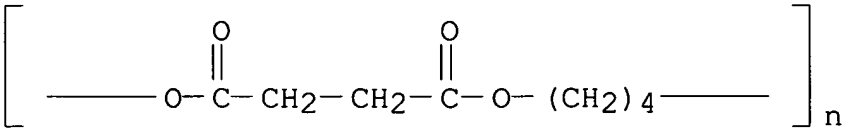


CM 2

CRN 110-15-6
CMF C4 H6 O4



RN 26247-20-1 ZCAPLUS
CN Poly[oxy(1,4-dioxo-1,4-butanediyl)oxy-1,4-butanediyl] (9CI) (CA INDEX NAME)



IC ICM C08L101-16
ICS C08K005-541; C08L001-00; C08L029-04; C08L067-00; C08L071-02; C08L077-04; C08L089-00

CC 37-6 (Plastics Manufacture and Processing)
IT 9002-89-5, Poly(vinyl alcohol) 9004-34-6, Cellulose, properties 9004-35-7, Acetylcellulose **9005-25-8**, **Starch**, properties 9012-76-4, Chitosan 24936-97-8, Poly(butylene adipate) 24980-41-4, Polycaprolactone 24980-41-4D, Polycaprolactone, diol derivs. 25103-87-1, Poly(butylene adipate) 25190-06-1, Poly(tetramethylene glycol) 25248-42-4, Polycaprolactone 25248-42-4D, Polycaprolactone, diol derivs. 25322-68-3, Poly(ethylene glycol) 25322-69-4, Poly(propylene glycol) 25569-53-3, Poly(ethylene succinate) 25608-40-6, Poly(aspartic acid) 25667-11-2, Poly(ethylene succinate) **25777-14-4** 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26063-13-8, Poly(aspartic acid) 26100-51-6, Poly(lactic acid) 26161-42-2, Lacty 1012 **26247-20-1**, Poly(butylene succinate) 26811-96-1 34345-47-6 52352-27-9, Poly(hydroxybutyric acid) 67423-06-7D, reaction products with diisocyanates 78644-42-5, Poly(malic acid) 80181-31-3, Biopol D 600G 102190-94-3, Poly(hydroxyvaleric acid) 124124-22-7, Placcel H 1P 233682-91-2, Bionolle 3000 261178-64-7
(fire-resistant biodegradable composite resin compns.)

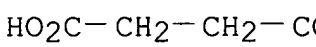
L73 ANSWER 20 OF 25 ZCAPLUS COPYRIGHT 2005 ACS on STN
1999:130801 Document No. 130:183573 Aliphatic polyester-based **biodegradable sheets** for agricultural use.
Kuroiwa, Kinji; Mitsuhashi, Kimiyuki; Kobori, Tadashi; Kenda, Takashi (Shin-Etsu Polymer Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11048436 A2 **19990223** Heisei, 8 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1997-210392 19970805.
AB The sheets comprise paper or nonwoven fabrics laminated with compns. contg. 100 parts biodegradable aliph. polyesters and 10-150 parts surface-modified fillers. Thus, a compn. contg. Bionolle 1001 100, tetraisopropyl bis(dioctylphosphito)titanate-treated CaCO3 120, stearic acid 2, and Ca alkylbenzenesulfonate 3 parts was kneaded and molded to give a 2-mm sheet with tensile strength 163 kg/cm2, 100% modulus 149 kg/cm2, and elongation 216%, which was then pelletized and coextruded with recycled paper to give a laminated sheet.
IT **25777-14-4** **26247-20-1**, Bionolle 1001
(aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
RN 25777-14-4 ZCAPLUS
CN Butanedioic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)

CM 1

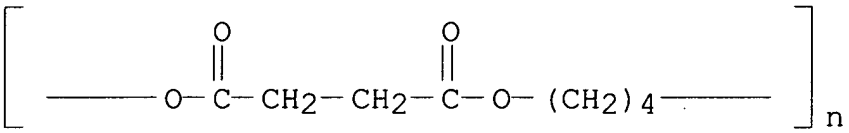
CRN 110-63-4
CMF C4 H10 O2

CM 2

CRN 110-15-6
CMF C4 H6 O4



RN 26247-20-1 ZCAPLUS
CN Poly[oxy(1,4-dioxo-1,4-butanediyl)oxy-1,4-butanediyl] (9CI) (CA INDEX NAME)



IT **9005-25-8, Starch**, uses
(corn, filler, surface-treated; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
RN 9005-25-8 ZCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B32B027-36
ICS B32B027-10; B32B027-12
CC 38-3 (Plastics Fabrication and Uses)
ST **biodegradable sheet laminate** polyester paper; nonwoven fabric **biodegradable** polyester **laminate sheet**; agriculture sheet aliph polyester paper laminate; coupling agent treatment filler polyester blend; butanediol succinate polymer **laminate biodegradable sheet**
IT Glass microspheres
(X 39, filler; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Coupling agents
Laminated materials
Nonwoven fabrics
(aliph. polyester-based **biodegradable laminate**

sheets for agricultural use)
IT Polyesters, uses
(aliph.; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Polymers, uses
(biodegradable; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Microspheres
Microspheres
(ceramic, filler; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Titanates
(coupling agents; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Clays, uses
Glass beads
(filler; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Ashes (residues)
(fly, from papermaking sludge, filler; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Ceramics
Ceramics
(microspheres, filler; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Polysiloxanes, uses
Polysiloxanes, uses
(polyoxyalkylene-, epoxy-contg., Mac 2101, coupling agent; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Polyoxyalkylenes, uses
Polyoxyalkylenes, uses
(polysiloxane-, epoxy-contg., Mac 2101, coupling agent; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Paper
(recycled; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Epoxides
(silyl, coupling agents; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT Fillers
(surface-modified with coupling agents; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)

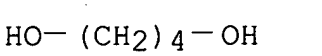
IT **25777-14-4 26247-20-1**, Bionolle 1001 67423-06-7, Bionolle 3010
(aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT **9005-25-8, Starch**, uses
(corn, filler, surface-treated; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT 64060-97-5, Tetraisopropyl bis(dioctylphosphito)titanate
(coupling agent; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT 7429-90-5D, Aluminum, derivs., uses
(coupling agents; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT 471-34-1, Calcium carbonate, uses
(filler, coupling agent-treated; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT 1305-62-0, Calcium hydroxide, uses 1309-42-8, Magnesium hydroxide 7631-86-9, Silica, uses 14807-96-6, Talc, uses 21645-51-2, Aluminum hydroxide, uses
(filler; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT 16005-17-7D, Acetylene glycol, derivs.
(surface modifier for fillers; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)
IT 9014-85-1, Surfynol 440
(surface modifier for **starch**; aliph. polyester-based **biodegradable laminate sheets** for agricultural use)

L73 ANSWER 25 OF 25 ZCAPLUS COPYRIGHT 2005 ACS on STN
1996:674223 Document No. 125:302743 Biodegradable cores for adhesive tapes. Kitazaki, Yasuaki; Tsuzuki, Yoshinaga; Ishiguro, Tomoyuki (Nichiban Kk, Japan). Jpn. Kokai Tokkyo Koho JP 08217338 A2 **19960827** Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-51820 19950216.
AB The core comprises a paper tube and a middle or outer **layer** comprising **biodegradable** polymers (e.g., polyesters from microorganisms, **starch** polymers, synthetic aliph. polyesters, natural polymers, and/or polyurethanes contg. units of saccharide polyols). A paper tube was covered with cellular poly(tetramethylene succinate) sheet to give an adhesive tape core exhibiting degrdn. amt. 20% and 50%, resp., on embedding the core in soil for 6 mo and 1 yr.
IT **25777-14-4**, Poly(tetramethylene succinate)
26247-20-1, Poly(tetramethylene succinate)

(cellular; biodegradable cores for adhesive tapes)
RN 25777-14-4 ZCAPLUS
CN Butanedioic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)

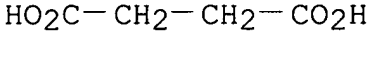
CM 1

CRN 110-63-4
CMF C4 H10 O2

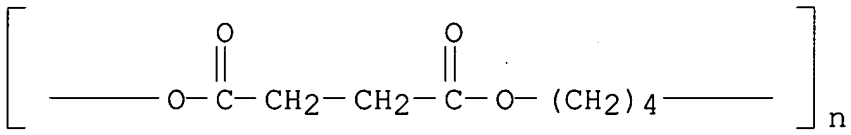


CM 2

CRN 110-15-6
CMF C4 H6 O4



RN 26247-20-1 ZCAPLUS
CN Poly[oxy(1,4-dioxo-1,4-butanediyl)oxy-1,4-butanediyl] (9CI) (CA INDEX NAME)



IC ICM B65H075-10
ICS C09J007-02
CC 38-3 (Plastics Fabrication and Uses)
ST biodegradable adhesive tape core; polyester cellular biodegradable core adhesive tape; polyurethane cellular biodegradable core adhesive tape; **starch** polymer biodegradable core adhesive tape
IT Adhesive tapes
(**biodegradable** cellular polymer-**covered** paper tube cores for)
IT **25777-14-4**, Poly(tetramethylene succinate)
26247-20-1, Poly(tetramethylene succinate)
(cellular; biodegradable cores for adhesive tapes)